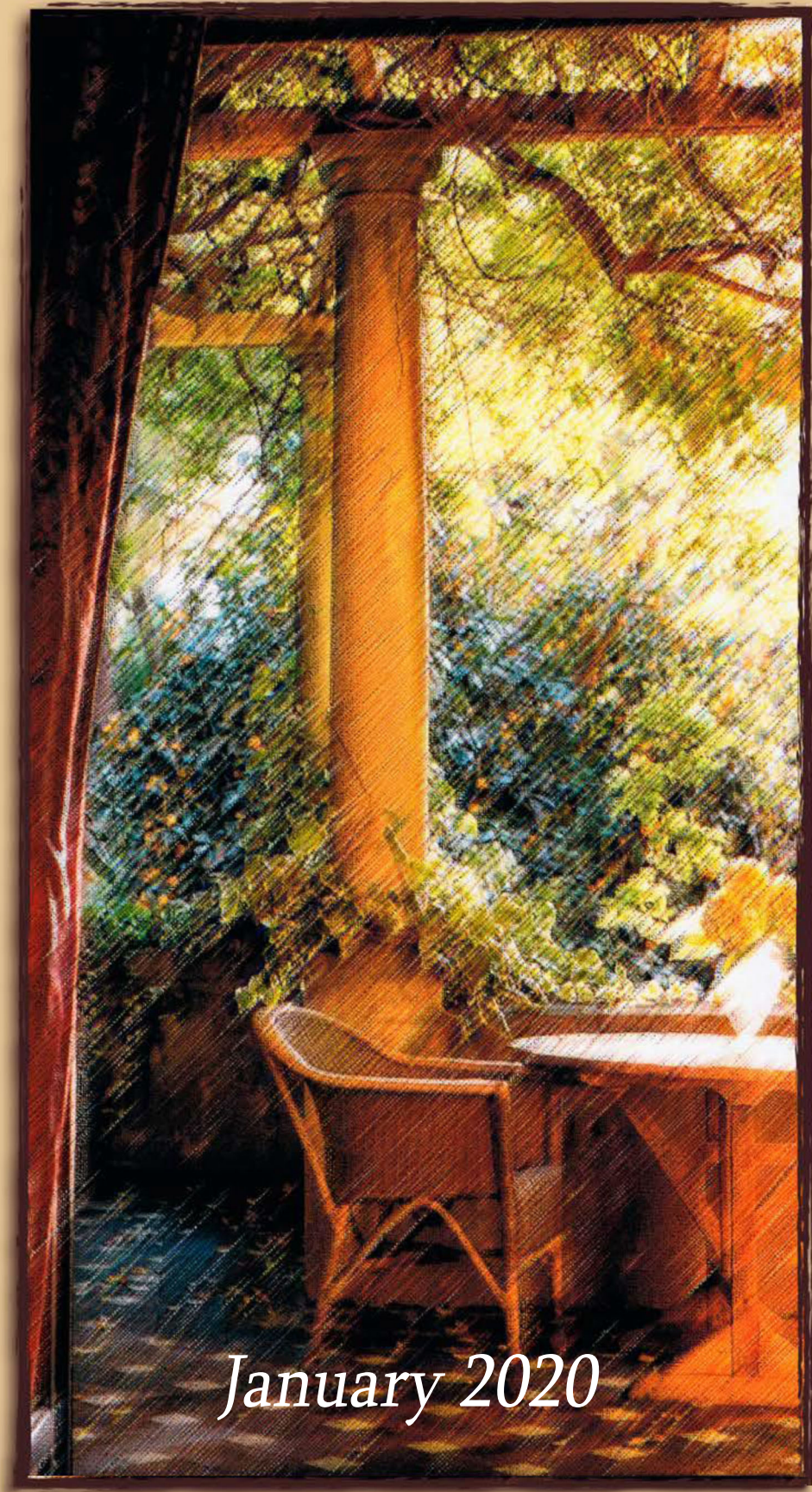


# OTAY RANCH RESORT VILLAGE

ALTERNATIVE H



*January 2020*

# WATER CONSERVATION PLAN

# **DEXTER WILSON ENGINEERING, INC.**

WATER • WASTEWATER • RECYCLED WATER  
CONSULTING ENGINEERS

## **OTAY RANCH RESORT VILLAGE ALTERNATIVE H WATER CONSERVATION PLAN**

**January 2020**

**OTAY RANCH RESORT VILLAGE  
ALTERNATIVE H  
WATER CONSERVATION PLAN**

January 2020



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## ABBREVIATIONS

ac -	acre
ac-ft -	acre-foot
AF-	Acre-Foot
BMPs-	Best Management Practices
cfcd -	community facilities district
cfs -	cubic feet per second
gpd -	gallons per day
gpf -	gallons per flush
gpm -	gallons per minute
HOA-	homeowner's association
mgd -	million gallons per day
MF-	Multi-Family
MWD-	Metropolitan Water District
psi-	pounds per square inch
SDCWA-	San Diego County Water Authority
SF-	Single Family
UWMP-	Urban Water Management Plan

## USEFUL CONVERSIONS

1 acre-foot	=	325,829 gallons
1 mgd	=	1,000,000 gallons/day
1 cfs	=	448.8 gpm
1 cubic foot	=	7.48 gallons
1 mgd	=	694.4 gpm

## EXECUTIVE SUMMARY

This report reviews currently available water conservation technologies and practices in the residential development context and presents water conservation measures that will be incorporated into the planning and design of the Otay Ranch Resort Village Alternative H (Alternative H) project.

Alternative H proposes a residential community of 1,881 single family homes and 57 multi-family homes, for a total of 1,938 homes. Other land uses include a resort site, a mixed use site, a community homeowner facility, a school site, parks, a site for public safety facilities, and open space/MSCP Preserve uses.

The Otay Water District is the local water agency that will supply potable water to the project. The total estimated average potable water use for the project is 1.17 mgd. The use of recycled water is not being proposed for the project due to its proximity relative to Upper Otay Reservoir and since recycled water facilities have not been extended to the area.

The State of California (Green Building Standards Code, 2016) County of San Diego (Water Conservation in Landscaping Ordinance, 2016) have mandated a number of water conservation measures that apply to the Alternative H project and will help to reduce the overall consumption of potable water. The focus of this study, however, is on the implementation of non-mandated water conservation measures, which are described later. Such measures would augment those required by law and would provide even greater water savings.

Alternative H would include installation of hot water pipe insulation, pressure reducing valves and water efficient dishwashers in single family and mixed use residential units. By complying with the model water use ordinance, outdoor water use demands at single family residences would also be reduced. In addition, Alternative H, where feasible, would provide graywater systems and rain water harvesting for residential units and would comply with water conservation measures in effect at the time of project approval. Hot water pipe insulation and pressure reducing valves would also be installed in non-residential development. At buildout of the Alternative H project, implementation of these additional non-mandated water conservation measures would result in an estimated water savings of 70,431 gallons per day for the residential component of Alternative H. This does not include potential additional savings from graywater systems and rain water harvesting systems.

## INTRODUCTION

In recent years, the subject of water conservation has been given increased public attention. The growing awareness of the need and value of water conservation has been sparked by local and regional water purveyors concerned about meeting the future water demands of their customers, particularly during drought conditions or due to reduced water supplies. Water conservation programs provide a mechanism for reducing the use of water demand for proposed urban development. The intent of water conservation is to manage water demand so that the customers receive adequate service but use less water.

Much has been done to educate consumers about limitations of water supply, the serious implications of a long-term drought, and the need for water conservation, but there is a practical limit to how much water use can be reduced in established communities. This limit is a result of the types of plumbing fixtures installed in existing homes as well as the difficulty in altering consumers' established patterns of water use. Any water conservation effort, voluntary or mandatory, requires the cooperation of the public. Public information should be utilized to inform and convince the consumer that a change in personal water use habits is in everyone's best interest.

In recent years, the private development sector has become more attuned to the concerns of water availability, and has recognized the value of addressing water conservation issues throughout planned development projects. By incorporating low water use plumbing fixtures, installing and promoting drought tolerant landscaping, and providing educational materials to home buyers, private developments can do much to cultivate an interest in water conservation and establish new patterns of water use. These efforts can have significant impacts with regard to reducing the need for securing and importing water for use in San Diego County.

In 2006 the State repealed the Water Conservation in Landscaping Act and adopted a new Water Conservation in Landscaping Act, Government Code sections 65591 et seq. The new Act requires the Department of Water Resources to update the previously adopted model efficient landscape ordinance to provide for greater efforts at water conservation and more efficient use of water in landscaping. The County of San Diego has adopted an ordinance in 2010 that complies with the findings and declaration of the State's Water Conservation in Landscaping Act and is as effective as the State's updated model water efficient landscape ordinance. In response to the Governor's Executive Order B-29-15 issued in April 2015, the County of San Diego adopted an amended Water Conservation in Landscaping Ordinance in



April 2016. This Water Conservation Plan (WCP) incorporates the requirements of the County's current ordinance.

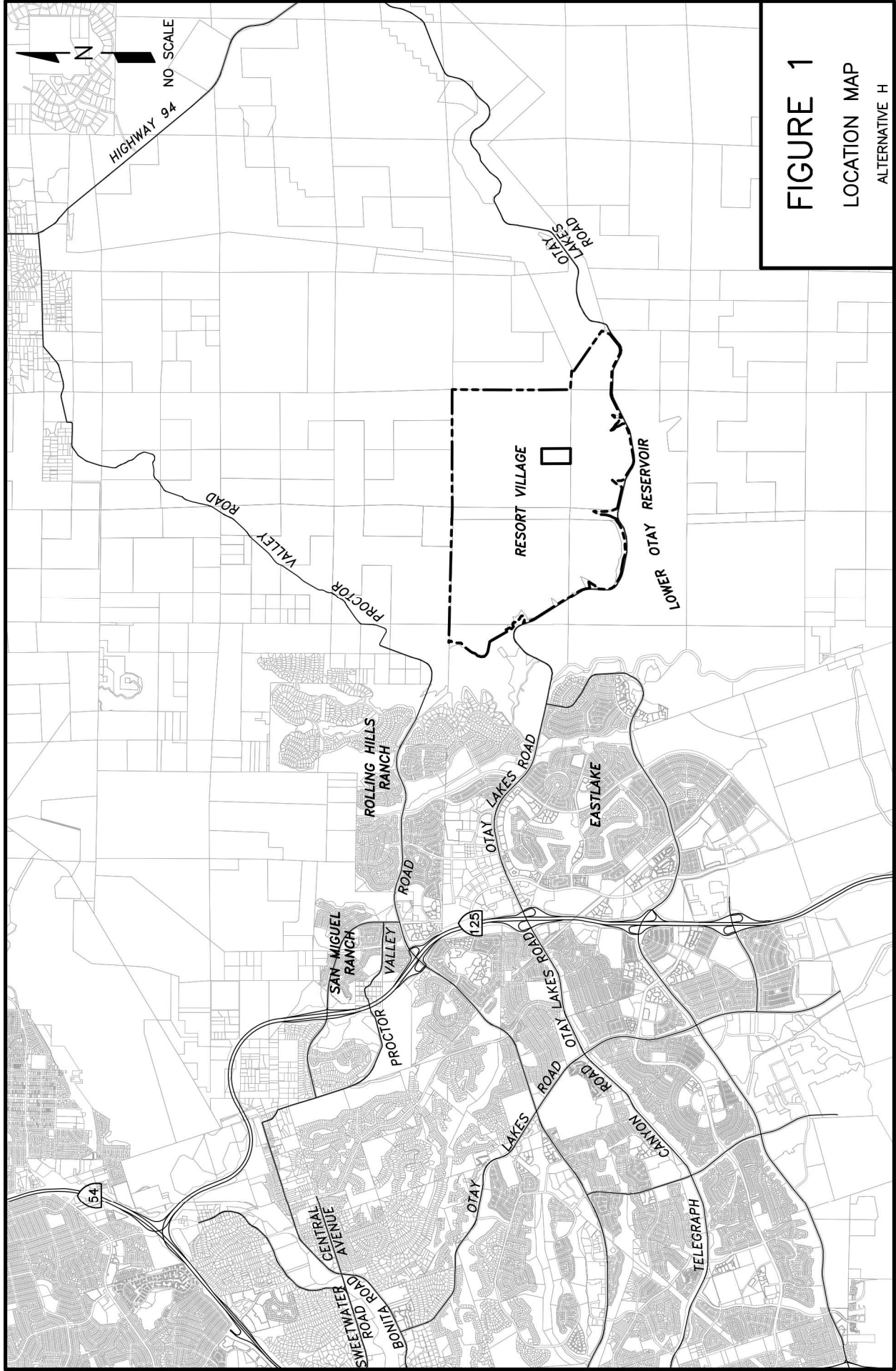
## **PURPOSE**

The State's Legislature determined in the Water Conservation in Landscaping Act that the State's water resources are in limited supply. The Legislature also recognized that while landscaping is essential to the quality of life in California, landscape design, installation, maintenance, and management must be water efficient. This Water Conservation Plan presents a review of available technologies and practices, both indoor and outdoor, which result in water conservation in primarily residential developments. The WCP also discusses water conservation measures that will be implemented in non-residential areas and the documents that will ensure that water conservation measures are incorporated into the landscaping systems in these areas.

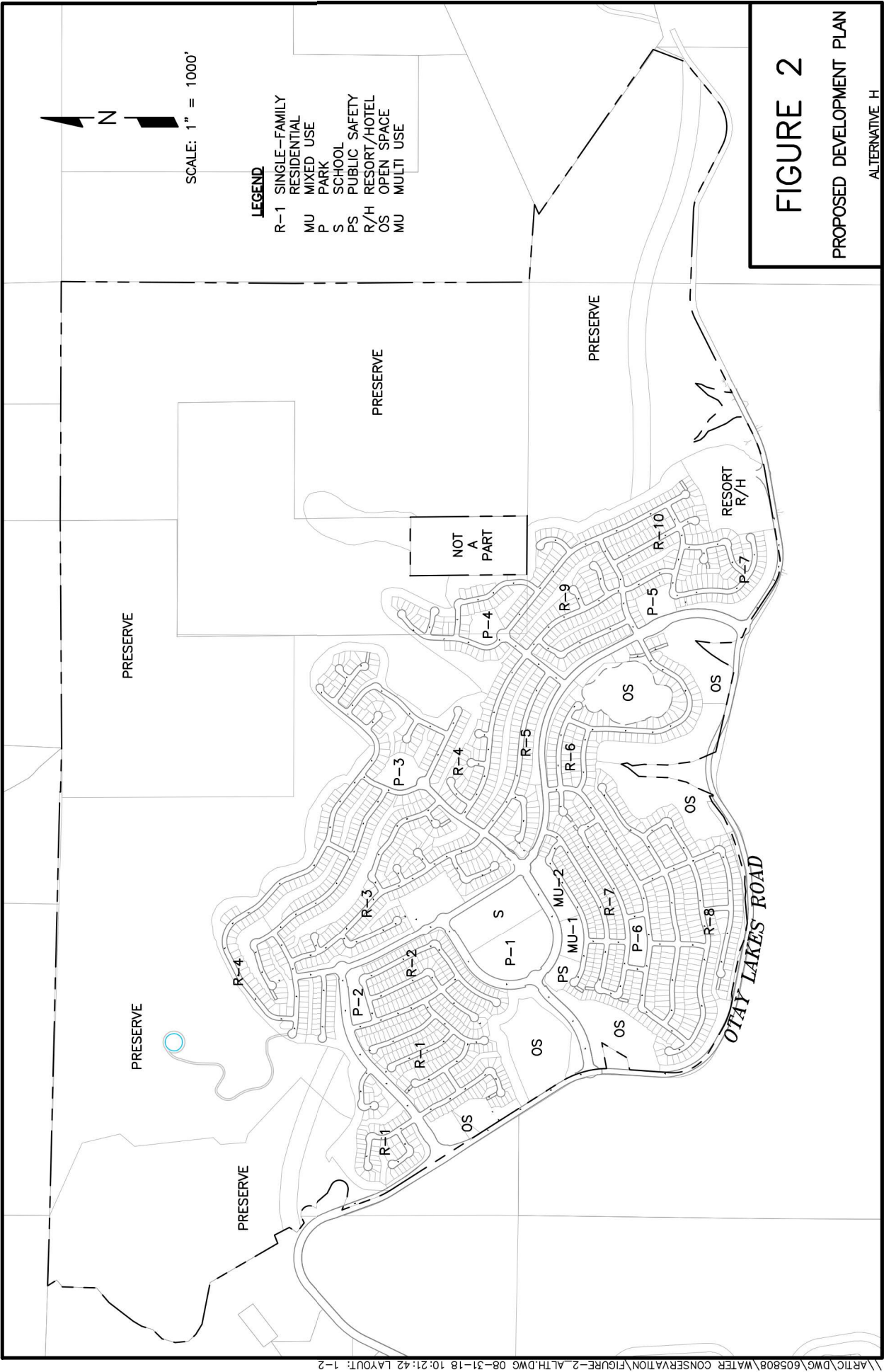
The purpose of this Water Conservation Plan is to determine how these technologies and the implementation of the County Water Conservation in Landscaping Ordinance will impact water use within the Alternative H project. The water conservation measures presented in this Water Conservation Plan will be incorporated into the planning and design of the project. The WCP also provides an estimate of the anticipated water savings from these measures. Although not covered in this report, there are several secondary benefits to conserving water that should be kept in mind when reviewing this plan. These benefits include reducing sewage flows, natural gas use, and electricity use. For example, using less water in the shower reduces the amount of water input into the sewer system and reduces the amount of energy required to heat the water.

## OVERVIEW AND BACKGROUND

Under Alternative H, the 1,869-acre project site would be developed in accordance with the approved preserve and development boundaries as shown in the MSCP County Subarea Plan. Figure 1 provides a location map and Figure 2 provides the proposed land use plan for Alternative H. Development of the Project Site would consist of 1,881 single-family homes and 57 multi-family homes for a total of 1,938 homes and a total residential development footprint of roughly 523.4 acres. Resort uses would encompass roughly 16.6 acres in the southeast portion of the Project Site and includes up to 200 rooms and 20,000 square feet of ancillary retail/commercial uses. This alternative also includes a 6.1 acre community homeowner facility, located in close proximity to the village core, which includes meeting space and fitness center, recreation courts, swimming pool and picnic areas, located in close proximity to the village core. A total of about 25.1 acres of public parks would be provided which includes a central park in the village core and five neighborhood parks within convenient walking distance from all homes. A 10 acre elementary school site is proposed adjacent to the central park. While no Public Safety Site was included within Village 13 in the Otay SRP, which located a fire station in Village 15, as with the Proposed Project, Alternative H would include a 2.3 acre Public Safety Site. Otay Lakes Road would remain in its existing location and would be improved. Alternative H would convey 1,107 acres to the Otay Ranch Preserve. This alternative would also include 69.3 acres of conserved open space and 76.4 acres comprised primarily of homeowner association maintained manufactured slopes, fuel management zones, and water quality basins. Other land uses include 32.4 acres for internal circulation.



**FIGURE 1**  
**LOCATION MAP**  
 ALTERNATIVE H





## **WATER SERVICE AND SUPPLY**

The Otay Water District is the local water agency that will supply potable water to the proposed project and it relies solely on the San Diego County Water Authority (SDCWA) for its potable water supply. The SDCWA is the largest of 27 member agencies of the Metropolitan Water District of Southern California (MWD), which is the primary importer of potable water to Southern California. Prior to receiving service, the project will be required to annex into the boundaries of all three agencies. The September 2018 Overview of Water Service for the project provides a detailed discussion of water supply to Alternative H.

## **PROJECTED WATER USE**

### **Potable Water Demand**

Water use is affected by, among other things, climate and the type of development. In California, recent trends toward the construction of multi-unit housing, the general reduction in residential lot size, and a number of local agency water conservation programs, are tending to reduce per capita water consumption.

Potable water demands were projected by taking the total development for each land use and multiplying by water use factors. Table 1 provides the projected potable water demand for the Alternative H project. This information is from the September 2018 Overview of Water Service for the Otay Ranch Resort Village Alternative H. The total estimated potable water use is 1.17 mgd. Potable water use factors were taken from the 2015 Otay Water District Water Master Plan. No recycled water use is assumed for the project because the City of San Diego does not allow recycled water to be used on properties that are tributary to their reservoirs. Although the City of San Diego does not allow recycled water use on properties tributary to their reservoirs, recycled water could be considered in the future if the City of San Diego changes their policy.

**TABLE 1  
PROJECTED POTABLE WATER DEMANDS  
OTAY RANCH RESORT VILLAGE ALTERNATIVE H**

<b>Land Use</b>	<b>Quantity</b>	<b>Unit Demand</b>	<b>Average Day Demands, gpd</b>
SF Residential (1-3 DU/AC)	284 units	700 gpd/unit	198,800
Residential (3-10 DU/AC)	1,597 units	435 gpd/unit	694,695
MU – Residential	57 units	200 gpd/unit	11,400
MU – Commercial	2.7 ac	1,785 gpd/ac	4,820
Parks	20.2 ac	1,900 gpd/ac	38,380
Public Safety	2.3 ac	1,785 g0pd/ac	4,106
School Site	10.1 ac	1,785 gpd/ac	18,030
HOA	6.1 ac	1,900 gpd/ac	11,590
Resort Units	200 units	200 gpd/unit	40,000
Resort Commercial	2.0 ac	1,785 gpd/ac	3,570
Irrigated Areas	76.4 ac	1,900 gpd/ac	145,160
<b>TOTAL</b>			<b>1,170,551</b>

### MANDATED WATER CONSERVATION MEASURES

The State of California and County of San Diego have mandated a number of water conservation measures. Table 2 summarizes the conservation measures that are mandated by the State of California and also provides the requirements of the 2016 California Green Building Standards Code that went into effect January 1, 2017. The County of San Diego amended the Water Conservation Plan in Landscaping Ordinance in April 2016. These measures will apply to both residential and non-residential land uses being proposed by the project.

<b>TABLE 2</b> <b>MANDATED WATER CONSERVATION DEVICES</b>		
<b>Device</b>	<b>Baseline Requirement</b>	<b>2016 Green Building Code Requirements</b>
Showerheads	2.5 gpm	2.0 gpm
Lavatory Faucets	2.2 gpm	1.2 gpm
Sink Faucets	2.2 gpm	1.8 gpm
Metering Faucets in Public Restrooms	0.25-0.75 gal/cycle	0.25 gal/cycle
Residential Water Closets	1.6 gpf	1.28 gpf
Flushometer Valves	1.6 gpf	1.28 gpf
Commercial Water Closets	1.6 gpf	1.28 gpf
Urinals	1.0 gpf	0.125/0.5 gpf <sup>1</sup>

<sup>1</sup> Wall mounted urinals shall not exceed 0.125 gpf. All other urinals shall not exceed 0.5 gpf.

## NON-MANDATED WATER CONSERVATION MEASURES

The following non-mandated water conservation measures are recommended for the Alternative H project.

### **Residential Measures**

1. Hot Water Pipe Insulation. Hot water pipes shall be insulated and hot and cold water piping shall be separated, resulting in annual savings of 2,400 gallons per residential unit.
2. Pressure Reducing Valves. The maximum service pressure shall be set to 60 psi to reduce any potential leakage present and prevent excessive flow of water from appliances and fixtures, resulting in annual water savings of 1,800 gallons per residential unit.
3. Water Efficient Dishwashers. Water efficient dishwashers that carry the Energy Star label shall be installed in residential units, resulting in an estimated annual water savings of 650 gallons per residential unit.

4. **Residential Landscaping.** Residential landscaping shall comply with the Model Water Efficient Landscape Ordinance, California Code of Regulations Title 23, Division 2, Chapter 2.7 (Section 490 et seq.). By complying with this ordinance, it is estimated for the proposed project that outdoor water use at single family residences will be reduced by approximately 10 percent. Residential water use can vary widely based on the size of the lots; however, based on OWD factors for the proposed project, estimated water use for a typical single family home is 435 gpd for densities of 3.0 to 10 units per acre and 700 gpd for densities of 1.0 to 3.0 units per acre. With an estimated 50 percent of this water used outdoors, the estimated annual water savings is 7,940 gallons per single family residence where densities are from 3.0 to 10 units per acre and 12,775 gallons per single family residence where densities are from 1.0 to 3.0 units per acre based on these assumptions. While the potential savings can vary based on lot size and product type, this estimate is considered to be a representative average of water savings per single family residential unit.

### **Non-Residential Measures**

The non-residential uses for this project may include school, park restrooms, commercial and retail shops, public use facilities, etc. These land uses should consider incorporating these measures within the design.

1. **Hot Water Pipe Insulation.** Hot water pipes shall be insulated and hot and cold water piping shall be separated.
2. **Pressure Reducing Valves.** The maximum service pressure shall be set to 60 psi to reduce any potential leakage present and prevent excessive flow of water from appliances and fixtures.
3. **Landscaping.** As discussed in the Water Conservation Implementation section of this report, landscaped areas within the Proposed Project must comply with Development Regulations, the County's Water Conservation in Landscaping Ordinance, the Fire Protection Plan, and the Preserve Edge Plan, as applicable.



In addition to the measures recommended above, a number of other measures have been considered. These include water supply offsets, graywater systems, and storm water harvesting, which are discussed below. Of these potential measures, all were considered to be feasible for the proposed project, as discussed below.

### **Water Supply Offsets**

In the event that the drought conditions become so severe that OWD declares a Drought Level 3 emergency, it is recommended that the proposed project offset its projected water use by contributing to the cost of or actually constructing offsite improvements. These offsite improvements would be designed to reduce existing potable water use and typically consist of retrofitting older buildings with newer fixtures that are more water efficient. Since the time Executive Order B-29-15 was issued by the Governor on April 1, 2015, statewide water conditions have improved. Mandatory water use reductions that were in effect in 2015 and the early part of 2016 have been lifted and OWD is in a Level 1 drought condition which encourages voluntary cutbacks to water use. Alternative H will comply with whatever measures are in place at the time the project develops

### **Graywater**

Graywater pursuant to California Health and Safety Code Section 17922.12 means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. Graywater includes wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers. Graywater system requirements are also provided in the 2016 California Plumbing Code, which went into effect on January 1, 2017.

Graywater systems necessitate additional plumbing onsite at each residence in order to send the wastewater from graywater acceptable sources to the graywater system. The graywater system then distributes the graywater through a subsurface irrigation system. Some of the requirements and considerations for residential gray water systems are summarized as follows:

- All graywater systems shall be designed with a diverter valve to allow flows to be sent to the sewer system
- Water used to wash diapers or similarly soiled garments shall be diverted by the homeowner to the sewer system
- Graywater shall not be allowed to be used for spray irrigation, shall not be allowed to pond, and shall not be allowed to runoff the site
- Human contact with soil irrigated by graywater shall be minimized and avoided where possible
- The discharge of graywater shall be in a subsurface irrigation system that is covered by a minimum of 2 inches of rock, soil, mulch, or a solid shield
- Graywater systems require operation and maintenance by the homeowner to work properly
- Graywater may not be used for irrigation of edible food crops
- The homeowner shall be responsible to ensure that graywater does not include hazardous chemicals

Some agencies, such as the City of Chula Vista, require new homes to be plumbed for graywater collection, but leave it up to the homeowner whether or not to install a graywater system. It is recommended that, where feasible, the project provide the plumbing for residential graywater systems. The actual implementation of a graywater system by the homeowner would need to comply with the Uniform Plumbing Code and would require approval from the County of San Diego Building Department.

### **Rain Water Harvesting**

Harvest and use (aka, Rainwater Harvesting) BMPs (Best Management Practices) are Low Impact Development (LID) BMPs that capture and store storm water runoff for later use. These BMPs are engineered to store a specified volume of water and have no design surface discharge until this volume is exceeded. Harvest and use BMPs include both above-ground and below-ground cisterns. Examples of uses for harvested water include irrigation, toilet and urinal flushing, vehicle washing, evaporative cooling, industrial processes and other non-potable uses.

For a project to be considered “feasible” to implement harvest and use BMPs, there must be enough water demands to utilize the rain water during both dry and wet seasons. The irrigation demand is typically calculated using the Modified Estimated Total Water Usage (ETWU) method. More details on the Modified ETWU can be found in Appendix B.3 in

Section B.3.2.2.1 of the Model BMP Design Manual San Diego Region Appendices.

Harvest and use BMPs are sized to drain the cistern in 36 hours following the end of a rainfall event. The size of the BMP tank or cistern is dependent on the calculated water demand and the systems are designed to capture at least 80% of the average annual (long term) runoff volume. Pre-treatment BMPs are typically included in harvest and use BMP design to maintain the functionality of the cisterns.

It is recommended that the proposed project include rainwater cisterns as an optional BMP that could be installed by the home builder or individual home owner on a case by case basis for irrigation demands.

### **Drainage/Site Design**

Drainages and swales are designed to County of San Diego standards and aren't directly applicable to residential water conservation, other than to collect, clean, and return runoff to natural drainages. Site LID measures which will promote water conservation are included in the design including draining rooftops and impervious areas to landscaped areas and landscaping with native or drought tolerant species.

## **WATER CONSERVATION ESTIMATED SAVINGS**

The estimated water savings for water conservation measures are based on the estimates provided previously in this Plan. The potential water savings varies widely based on land use types. Multi-family residential units, for example, have much less opportunity to implement additional water saving measures than low density single family residential units.

It is recommended that Alternative H incorporate a number of non-mandatory water conservation measures in mixed use attached residential and single-family residential units. Tables 3 and 4 summarize the total estimated water savings for the Alternative H project based on these recommended measures. Based on 57 residential units (>10 DU/ac), 1,579 single family units (3-10 du/ac), and 284 single family residential units (1-3 du/ac) within Alternative H at buildout, implementation of the measures in Tables 3 and 4 would result in estimated average water savings of 70,431 gallons per day for the residential portion of the project. These savings represent approximately 6.0 percent of the total project water use and will help lower per capita water use within the OWD.

In addition to the water savings above, water savings from graywater systems and rain water harvesting systems are also anticipated. It is not possible to quantify the savings from these other measures at this level of planning since it is unknown how many of the residential units on the project will implement these measures. Some general findings on the potential water savings associated with these measures are provided below.

The amount of water savings with a graywater system depends on a number of factors including soil type, quantity and types of landscaped areas, homeowners operation and maintenance of the system, and type of graywater system. The potential water savings for graywater systems are up to 100 gpd per household, but most landscape systems are not operated at 100 percent efficiency. A more typical range of actual water savings for a graywater system is 25 to 50 gpd per home.

The amount of water savings associated with rain water harvesting also depends on a number of factors including catchment area, storage capacity, annual rainfall, and the seasonality of rainfall. A 1,500 square foot roof will collect 934 gallons of water during a 1-inch rain event. Based on average rainfall in this area, the resulting potential water capture for re-use would be approximately 10,000 gallons per year. The actual amount of re-use could be substantially lower than this, however, due to the seasonality of rain in the area. On an annual average basis, the typical actual savings would likely be 10 to 15 gpd per household.

<b>TABLE 3</b> <b>RESIDENTIAL (&gt;10 DU) PROPOSED</b> <b>WATER CONSERVATION MEASURES</b>					
<b>Measure</b>	<b>Location</b>	<b>Yearly Water Savings, gpy/unit</b>	<b>Daily Water Savings, gpd/unit</b>	<b>Percentage of Total Usage<sup>1</sup></b>	<b>Project Total Water Savings<sup>2</sup>, gpd</b>
Hot Water Pipe Insulation	Indoor	2,400	6.58	3.3	375
Pressure Reducing Valves	Indoor	1,800	4.93	2.5	281
Water Efficient Dishwashers	Indoor	650	1.78	0.9	101
<b>TOTAL</b>		<b>4,850</b>	<b>13.29</b>	<b>6.6</b>	<b>757</b>

<sup>1</sup>Based on 200 gpd/unit average usage.

<sup>2</sup>Based on 57 Residential (>10 DU/ac).

<b>TABLE 4</b> <b>SINGLE-FAMILY RESIDENTIAL</b> <b>WATER CONSERVATION MEASURES</b>					
<b>Measure</b>	<b>Location</b>	<b>Yearly Water Savings, gpy/unit</b>	<b>Daily Water Savings, gpd/unit</b>	<b>Percentage of Total Usage<sup>1</sup></b>	<b>Project Total Water Savings<sup>2</sup>, gpd</b>
<b>SF Residential (3 – 10 DU/ac)</b>					
Hot Water Pipe Insulation	Indoor	2,400	6.58	1.5	10,508
Pressure Reducing Valves	Indoor	1,800	4.93	1.1	7,873
Water Efficient Dishwashers	Indoor	650	1.78	0.4	2,843
Residential Landscaping	Outdoor	7,940	21.75	5.0	34,735
<b>Subtotal</b>		<b>12,790</b>	<b>35.04</b>	<b>8.1</b>	<b>55,959</b>
<b>SF Residential (1 – 3 DU/ac)</b>					
Hot Water Pipe Insulation	Indoor	2,400	6.58	0.9	1,869
Pressure Reducing Valves	Indoor	1,800	4.93	0.7	1,400
Water Efficient Dishwashers	Indoor	650	1.78	0.3	506
Residential Landscaping	Outdoor	12,775	35.00	5.0	9,940
<b>Subtotal</b>		<b>17,625</b>	<b>48.29</b>	<b>6.9</b>	<b>13,715</b>
<b>TOTAL</b>					<b>69,674</b>

<sup>1</sup>Based on 435 gpd/unit for 3-10 DU/Ac and 700 gpd/unit for 1-3 DU/Ac.

<sup>2</sup>Based on 1,597 SF Units (3-10 DU/Ac) and 284 SF Units (1-3 DU/Ac).

## WATER CONSERVATION IMPLEMENTATION

The Alternative H project is a primarily residential community with approximately 80 percent of the total projected water use being utilized in residential neighborhoods. As a result, the focus of this Water Conservation Plan is on residential water conservation measures. Alternative H will, however, achieve water conservation in common landscaped areas by complying with the County's Water Conservation in Landscaping Ordinance and taking other steps as detailed further below.

Landscaped areas within Alternative H must comply with Development Regulations, the County's Water Conservation in Landscaping Ordinance, the Fire Protection Plan, and the Preserve Edge Plan, as applicable. Areas that will be subject to County approval at the implementation stage of the project include residential front yard and side yard setback areas, parks, parkway landscaping, HOA maintained irrigated open space areas, the public safety site, and mixed use commercial site.

The HOA will enforce state and county landscape regulations for individual residential landscapes as it relates to the efficient use of water. State law and the County Water Conservation in Landscaping Ordinance requires that prior to issuance of a building permit, any property with 500 square feet of landscape area will need to submit a landscape plan to establish a water budget in setting a maximum applied water allowance as an upper limit for water use and reduce water use to the lowest practical amount. The County has created a streamlined approach to builders applying for building permits for tract homes within a residential subdivision for landscaped areas between 500-2,500 sq. ft. The developer shall prepare a Water Use Exhibit for all residential lots within the subdivision using the Prescriptive Compliance Option (PCO) requirements to establish water budgets for each lot. Developer is required to sign the Exhibit acknowledging that they will provide each homeowner with a copy of the water budget and the restrictions upon their landscaping based on the PCO. The Project's HOA will be responsible for verifying that water budgets proposed by an individual homeowner match with what the County approved water budget for their individual lot. If the homeowner chooses to exceed their approved water budget, they will be required to submit plans to the County in order to modify their water budget. Adherence to the PCO requirements will ensure the use of drought tolerant species, however, the Project's HOA, enforced through the CC&Rs and implemented through the HOA's Architectural and Landscape Committee, would be responsible for enforcing the approved documents associated with Otay Ranch Resort Village, as well as the County Water Conservation in Landscaping Ordinance.

Development Regulations will require residential front yard landscaping to meet County requirements which includes high efficiency irrigation equipment, low water use plants, and limiting natural turf to no more than 30 percent of the outdoor open space. (This standard shall apply unless water conservation technologies, strategies, and/or regulations change from time to time). The Master Homeowners Association, through the Landscape and Architectural Committee, will be responsible to review and approve landscape plans on private lots, including water conservation.

An Approved Plant List for the Alternative H project, including areas adjacent to the MSCP Preserve is provided in the Otay Ranch Resort Village Design Plan. The water conservation approach for these areas includes implementation of drought tolerant landscaping, hydrozones, and efficient and temporary irrigation systems, pursuant to the Fire protection plan requirements.

All areas of Alternative H, including common areas of commercial sites, parks, median islands, buffer areas, interior HOA maintained slopes, etc. will comply with the Water Conservation in Landscaping Ordinance and must comply with the Approved Plant List.

For all of the residential front yard landscaping installed by individual homebuilders and common areas landscaping installed by the Master Developer or individual homebuilders described above, either the County or the homeowners association will ensure all required water conservation measures are implemented by reviewing the landscape improvement plans and residential development regulations. This review and approval will ensure that all applicable requirements for water conservation measures in landscape systems are being implemented throughout Alternative H.



## REFERENCES

**The following documents were used or relied on as references in preparing this report and are incorporated by this reference:**

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